

**THAT WHICH IS CLAIMED IS:**

1. An image sensor having an image surface providing an array of pixels, each pixel comprising a photodiode, first output circuit means for deriving a linear output signal by applying a reset signal to the photodiode and reading out the voltage on the photodiode after a predetermined integration time, and second output circuit means for deriving a logarithmic output signal by reading out a near instantaneous illumination-dependent voltage which is a logarithmic function of illumination.

2. An image sensor according to claim 1, in which said first output circuit means comprises a reset switch for applying a reset voltage to the photodiode, a source follower connected to the photodiode, and a readout switch for turning on the source follower at the expiry of said integration time.

3. An image sensor according to any preceding claim, in which the second output circuit means comprises an amplifier and log select switch means for connecting the amplifier around the pixel.

4. An image sensor according to claim 2 and claim 3, in which the amplifier is a differential amplifier the inverting input of which is formed by said source follower and the non-inverting input of which is connected to a reference voltage.

5. An image sensor according to any preceding claim, including means for calibrating the

pixel before deriving the logarithmic output.

6. An image sensor according to claim 5, in which the calibrating means comprises a constant current source selectively connectable to the pixel.

7. An image sensor according to claim 6, in which the outputs are derived from a node associated with the photodiode, and in which the calibration means includes a switch for isolating the photodiode from the node while calibration takes place.

8. A method of operating an image sensor having an image surface providing an array of pixels, each pixel comprising a photodiode; the method comprising:

deriving a linear output from each pixel;

deriving a logarithmic output from each pixel; and

selecting the linear output if the pixel has not saturated during generation of the linear output, and otherwise selecting the logarithmic output.

9. A method according to claim 8, in which the linear output from each pixel is derived by applying a reset voltage, allowing a predetermined integration time, and thereafter reading out the voltage on the photodiode.

10. A method according to claim 8 or 9, in which the logarithmic output is derived by connecting an amplifier around the photodiode.

11. A method according to any of claims 8 to 10, in which the pixel is calibrated before the logarithmic output is derived.

12. A method according to claim 11, in which the pixel is calibrated by applying a constant current thereto.

13. A method according to claim 12, in which the photodiode has an associated node from which the logarithmic output is taken, and the photodiode is isolated from said node while the calibration takes place.